

Use the following information to answer Questions **20**, **21** and **22**.

Albinism (lack of skin pigmentation) is caused by a recessive autosomal allele. A man and woman, both normally pigmented, have an albino child together.

20. What is the probability that their next child will be phenotypically normal?

- A. 0 %
- B. 25%
- C. 50 %
- ☒ D. 75 %
- E. 100 %

21. The couple decides to have a second child. What is the probability that this child will be albino?

- A. 0
- ☒ B. 1/4
- C. 1/2
- D. 3/4
- E. 1

22. For this trait, what is the genotype of the albino child?

- A. homozygous dominant
- ☒ B. homozygous recessive
- C. heterozygous
- D. hemizygous
- E. Unknown because not enough information is provided

23. A 9:3:3:1 phenotypic ratio is characteristic of

- A. a monohybrid cross.
- ☒ B. a dihybrid cross.
- C. a trihybrid cross.
- D. linked genes.
- E. epistasis.

24. Which of the following is an example of polygenic inheritance?

- A. pink flowers in snapdragons.
- ☒ B. the ABO blood groups in humans.
- C. sex linkage in fruit flies.
- D. white and purple colour in pea plant flowers.
- ☒ E. height in humans.

25. The following is a map of four genes on a chromosome. Between which two genes would you expect to find the highest frequency of recombination?



- A. A and W
- B. W and E
- ☒ C. E and G
- D. A and E
- ☒ E. A and G

26. **AaBbccDdEe** x **AABbCcDdee**

From this cross, what is the probability of obtaining the genotype **AabbCcDDEe** in the progeny?

- A. 1/16
- B. 1/32
- C. 1/64
- ☒ D. 1/128
- E. 1/256

27. New combinations of linked genes are due to

- A. nondisjunction.
- ☒ B. crossing over.
- C. independent assortment.
- D. mixing of sperm and egg.
- E. mutations.

28. A recessive allele on the X chromosome is responsible for red-green colour blindness in humans. A woman with normal vision whose father is colour-blind marries a colour-blind male. What is the probability that couple's son will be colour-blind?

- A. 0
- B. 1/4
- ☒ C. 1/2
- D. 3/4
- E. 1